**PhD position in Physics at Warwick University - Circumbinary planets from space-based transiting planet surveys**

Dr David Brown

**Overview**

We invite applications from outstanding and highly motivated students for the Warwick Prize Scholarships in Astrophysics. The successful applicant will work with [Dr David Brown](https://warwick.ac.uk/fac/sci/physics/research/astro/people/dbrown/phd-opportunities/) within the [Astronomy and Astrophysics group](https://warwick.ac.uk/fac/sci/physics/research/astro/) in the Department of Physics at the University of Warwick.

**This project will explore the fascinating world of circumbinary planets, focusing on the use of data from space-based observatories to study those that transit one or both of their host stars.**

The number of known circumbinary planets (or CBPs) is still very small compared to the total number of known exoplanets. This limits our ability to investigate the formation and evolution of CBP systems, which may be very different from the similar processes for single-star planetary systems. The limited number of known CBPs also restricts our knowledge of the underlying parameter distributions, and the current sample is affected by strong observational biases.

CBPs are a relatively under-investigated group of exoplanets, and there are several areas that you could explore as part of this project, including:

(1) Detection of new transiting CBPs using data from the TESS satellite. These could be short-period planets with many detectable transits, or single-transit events indicative of planets on orbits misaligned with their host binary, or even non-transiting CBPs detected through eclipse timing variations.

(2) Modelling of CBP transits to constrain their orbital parameters and predict their future evolution.

(3) Simulation of CBP systems to evaluate their detectability and constraint the likelihood of planets being present in known eclipsing binary systems.

Please contact me directly to find out more and discuss how the project might be tailored to your particular interests and skill set.

Warwick is an internationally recognised centre of research excellence. Our group takes leading roles in many major ground and space-based projects, including the Gravitational-wave Optical Transient Observer (GOTO), Next Generation Transit Survey (NGTS), PLAnetary Transits and Oscillations of stars (PLATO) telescope, Sloan Digital Sky Survey (SDSS), WHT Enhanced Area Velocity Explorer (WEAVE) spectrograph, 4-metre Multi-Object Spectrograph Telescope (4MOST), and Dark Energy Spectroscopic Instrument (DESI).

The Astronomy & Astrophysics group is part of the Physics Department at Warwick; both the department and the university hold Athena SWAN Silver awards, a national initiative to promote gender equality for all staff and students. The Physics Department is also a Juno Champion, which is an award from the Institute of Physics to recognise our efforts to address the under-representation of women in university physics and to encourage better practice for all. The Astronomy & Astrophysics group also hosts monthly [equitea](https://warwick.ac.uk/fac/sci/physics/research/astro/seminars/equitea/) forums to break down barriers faced by all under-represented groups in science.

More details on PhD positions with the Astronomy and Astrophysics group at Warwick are available [here.](https://warwick.ac.uk/fac/sci/physics/research/astro/postgraduate_phd/)

Start Date: October 2023

Funding Duration: 3.5-4.0 years

Applications due by: 10 January 2023

**Eligibility**

You must have or expect a First or Upper second class MSci, MPhys or equivalent degree in Physics or a closely related discipline. Holders of BSc honours degrees are eligible but successful BSc applicants typically have substantial additional research experience. International equivalents are detailed [here](https://warwick.ac.uk/study/international/admissions/entry-requirements/).

For students whose first language is not English, we normally require a score of 6.5 in IELTS or equivalent. If your previous degree was taught in an English-speaking country this requirement may be waived.

The award is available to home and international applicants.

**How To Apply**

You must apply through the [University’s online application system](https://warwick.ac.uk/study/postgraduate/apply/research/) and follow the instructions. Use course code P-F3P0. Make sure to state an interest in the Astronomy and Astrophysics group. Please state ‘Warwick Prize Scholarships’ as the funding option. We encourage applicants to express interest in more than one [available PhD project.](https://warwick.ac.uk/fac/sci/physics/research/astro/postgraduate_phd/)

**Funding Notes**

The project will provide a full UK-standard annual tax-free stipend of £18,200, rising with inflation, plus allocations for travel and computing.